HP StorageWorks SAN Switch rack mount kit installation instructions

Sixth Edition (May 2007)

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About this Document

This document describes how to use the *optional* SAN Switch Rack Mount Kit to rack mount HP StorageWorks Storage Area Network (SAN) switches and routers.

Supported Devices

Use the SAN Switch Rack Mount Kit to install the following HP StorageWorks switches and routers *only*:

- SAN Switch 2/8V, SAN Switch 2/16V
- SAN Switch 2/32
- SAN Switch 4/32
- 4/8 SAN Switch
- 4/16 SAN Switch
- 4/64 SAN Switch
- 4/32B SAN Switch
- Multi-protocol (MP) Router
- 400 Multi-protocol (MP) Router

Supported HP Custom Racks

Use the SAN Switch Rack Mount Kit with the following HP StorageWorks custom racks *only*:

- HP 9000 Series Rack
- HP 10000 Series Rack
- HP 10000 G2 Series Rack
- HP System/e Rack

Note: Figures and procedures throughout this document use "HP 10000 Series Rack" to reference both 10000 Series rack models (HP 10000 Series Rack and HP 10000 G2 Series Rack).

Related Documentation

For the latest documentation, please visit the following HP website:

http://www.hp.com/go/san

Before You Begin - Important Information about the Plenum

The plenum is an air duct that attaches to the switch rails, enabling the switch to draw cooler air into the switch from outside the rack, rather than drawing in heated air from within the rack, see Figure 8.

A plenum ships with the following devices *only*:

- SAN Switch 2/8V
- SAN Switch 2/16
- SAN Switch 2/16V
- 4/8 SAN Switch
- 4/16 SAN Switch
- 4/32B SAN Switch

See Installing the Plenum (if required), page 17 for complete instructions on how to install a plenum.

Installation and Safety Guidelines

Verify that the rack and the area around the rack meets the following requirements:

- Plan a rack space that is 1.5 units high (2.6 inches; 6.7 cm), 19 inches (48.3 cm) wide, and at least 23 inches (68.6 cm) deep. For the MP Router or 4/64 SAN Switch, plan a rack space that is at least 2 units high.
- Ground all equipment in the rack through a reliable branch circuit connection, and maintain ground at all times. Do not rely on a secondary connection to a branch circuit, such as a power strip.
- Ensure that air flow and temperature requirements are met on an ongoing basis, particularly if the device is installed in a closed or multi-rack assembly.
- Verify that the additional weight of the device does not exceed the rack's weight limits or unbalance the rack in any way.
- Secure the rack to insure stability in case of unexpected movement.
- Only one rack component is extended at any time. A rack may become unstable if more than one rack component is extended for any reason.

Caution: For proper air flow, the SFP media side of the device must face the rear of the rack. This mounting allows air to enter from the front of the rack and to exhaust at the rear of the rack, similar to other rack-mounted equipment. This prevents overheating, which may cause it to fail.

Using the SAN Switch Rack Mount Kit to Install an HP StorageWorks Device

Read this section to install a SAN Switch or MP Router in an HP 9000 Series, HP 10000 Series, HP 10000 G2 Series or HP System/e rack.

Note: The SAN Switch Rack Mount Kit installation requires one technician.

Required Tools and Hardware

Obtain the following items:

- #2 Phillips screwdriver
- 7/16-inch wrench or socket
- HP StorageWorks device, see Supported Devices on page 3
- Plenum (if required), see Before You Begin - Important Information about the Plenum, page 4
- Power cables
- SAN Switch Rack Mount Kit hardware (smaller items like screws ship in plastic bags in the kit), see Table 1

Table 1: Hardware included in the SAN Switch Rack Mount Kit

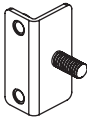
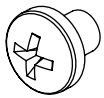
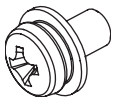
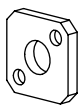
Item	Description
	Two (2) rear mounting brackets
	A right inner rail and a right outer rail
	A left inner rail and a left outer rail

Table 1: Hardware included in the SAN Switch Rack Mount Kit (Continued)

Item	Description
	Fourteen (14) #8-32 x 3/16-inch Phillips pan-head screws with thread lock Fourteen (14) #8-32 x .312 Phillips pan-head SEMS screws
	Fourteen (14) 8-32 x 5/16-inch Phillips pan-head SEMS screws
	Ten (10) #10-32 x 1/2-inch Phillips pan-head screws with captive star lock washers
	Eight (8) #10 alignment washers
	Eight (8) #10 adapter washers
	Two (2) 1/4-20 hex nuts with captive star lock washers
	Two (2) 1/4-inch flat washers

To install the HP StorageWorks device in a rack:

Note: Figures and procedures throughout this document use "HP 10000 Series Rack" to reference both 10000 Series rack models (HP 10000 Series Rack and HP 10000 G2 Series Rack).

1. Check the contents of the SAN Switch Rack Mount Kit shipping carton to verify that all the required parts and hardware are available. See Table 1, Hardware included in the SAN Switch Rack Mount Kit.
2. Choose a mounting location in the rack.
3. Attach the rear mounting brackets to the rear rack uprights by completing one of the following steps:
   — For HP 10000 Series racks, assemble each of the two brackets with two #10-32 x 1/2-inch Phillips pan-head screws with captive star lock washers and two #10 adapter washers as shown in Figure 1.

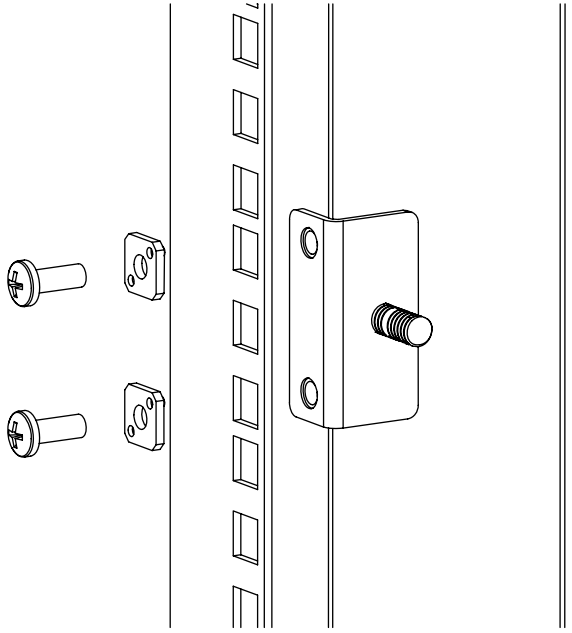


Figure 1: Installing the Rear Mounting Brackets (HP 10000 Series Racks)

— For an HP System/e rack, install each of the two rear mounting brackets with two #10-32 x 1/2-inch Phillips pan-head screws and two #10 alignment washers as shown in Figure 2.

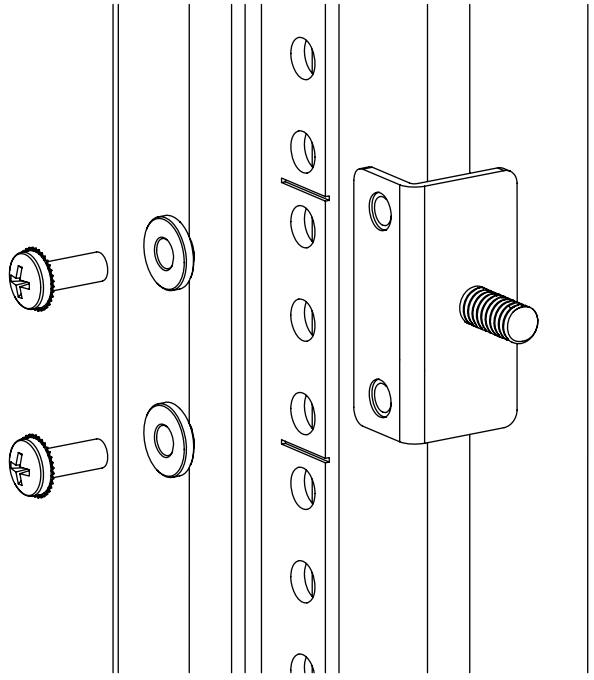


Figure 2: Installing the Rear Mounting Brackets (HP System/e Rack)

Note: Your SAN Switch Rack Mount Kit contains both left rails and right rails. The rails are labelled `Right` and `Left`.

4. Assemble the outer rails by completing the following steps:
   a. Attach the left outer rail and the right outer rails to the rear mounting brackets using two 1/4-20 hex nuts with captive star lock washers. Attach the hex nuts loosely (as shown in Figure 3). Do not tighten; tighten the hex nuts later in step 3 on page 19.

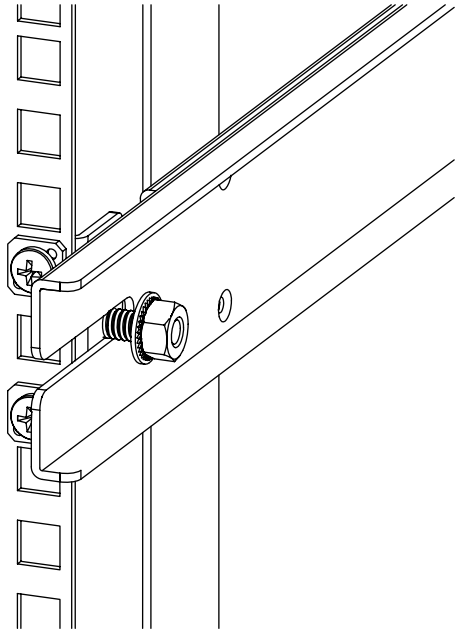


Figure 3: Installing the Outer Rails (HP 10000 Series Racks)

b. Depending on the rack you are using, complete one of the following tasks:

— For HP 10000 Series racks, install two #10-32 x 1/2-inch Phillips pan-head screws with captive star lock washers and two #10 adapter washers in the upper and lower hole locations of the right rail. Then install two #10-32 x 1/2-inch Phillips pan-head screws with captive star lock washers and two #10 adapter washers in the upper and lower hole locations of the left rail, as shown in Figure 4.

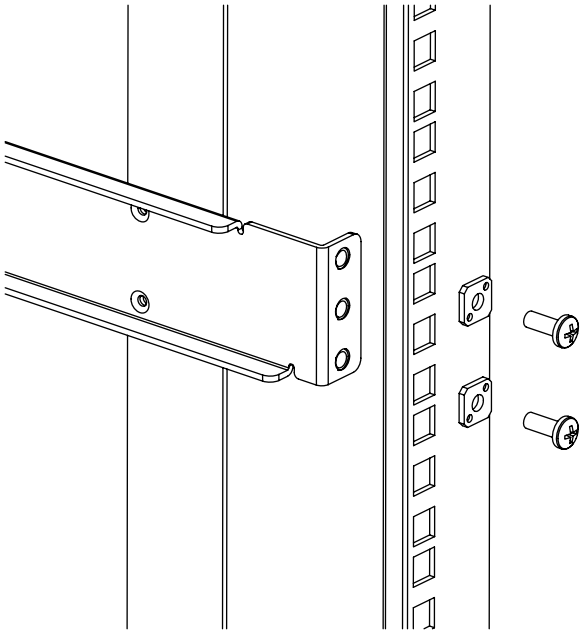


Figure 4: Assembling the Outer Rails (HP 10000 Series Racks)

— For an HP System/e rack, install two #10-32 x 1/2-inch Phillips pan-head screws with captive star lock washers and two #10 alignment washers in the upper and lower hole locations of the right rail. Then install two #10-32 x 1/2-inch Phillips pan-head screws with captive star lock washers and two #10 alignment washers in the upper and lower hole locations of the left rail, as shown in Figure 5.

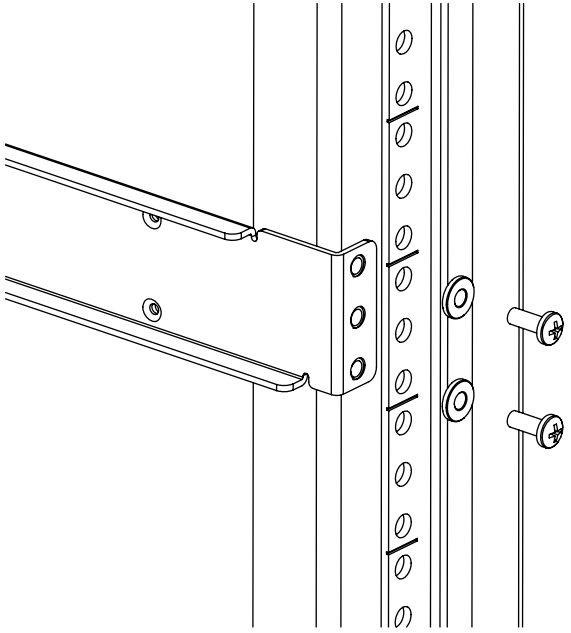


Figure 5: Assembling the Outer Rails (HP System/e Rack)

5. Depending on the device model, the SAN Switch Rack Mount Kit requires different screw types for securing the inner rails. Use Table 2 to determine the number and screw type for your specific switch or MP Router model.

Caution: Do not use any other screws other than the ones provided in the kit. Use of longer screws may cause damage to internal components.

Table 2: Number of Screws Required to Secure the Inner Rails

Device Model	#8-32 x .312 Phillips Pan-head SEMs Screws	#8-32 x 3/16-inch Screws
SAN Switch 2/16, SAN Switch 2/8V, or SAN Switch 2/16V	Ten (Five per rail)	N/A
SAN Switch 2/32	N/A	12 (Six per rail)
MP Router	Six (Three per rail)	N/A
SAN Switch 4/32	Ten (Five per rail)	N/A
4/8 and 4/16 SAN Switch	Ten (Five per rail)	N/A
4/64 SAN Switch and 400 MP Router switch	Ten (Five per rail)	N/A
4/32B SAN Switch	Six (Three per rail)	N/A

6. Identify the screw holes on the inner rails designed for your specific device as follows:
   a. To attach the inner rails to the SAN Switch 2/16, SAN Switch 2/8V, or SAN Switch 2/16V use the screw holes marked **8.**
   b. To attach the inner rails to the 4/8 and 4/16 SAN Switches, use the screw holes marked **8**.

c. To attach the inner rails to the SAN Switch 2/32 use the screw holes marked **32**.

d. To attach the inner rails to the MP Router, use the screw holes marked **R**.

e. To attach the inner rails to the SAN Switch 4/32, 4/32B SAN Switch, 4/64 SAN Switch or the 400 MP Router use the screw holes marked **16**.

Caution: Remember to use the screw holes labelled 8 when attaching the inner rails to the SAN Switch 2/16V or SAN Switch 2/16N.

7. Assemble the two inner rails (one on each side) to the device using the appropriate number of screws (see Table 2).

   For example, Figure 6 shows an inner rail attached to the MP Router with three screws using the rail screw holes marked **R**. Please note that attaching both rails require six screws.

   Also, Figure 7 shows an inner rail attached to the 4/64 SAN Switch with five screws using the rail screw holes marked **16**. Please note that attaching both rails require ten screws.

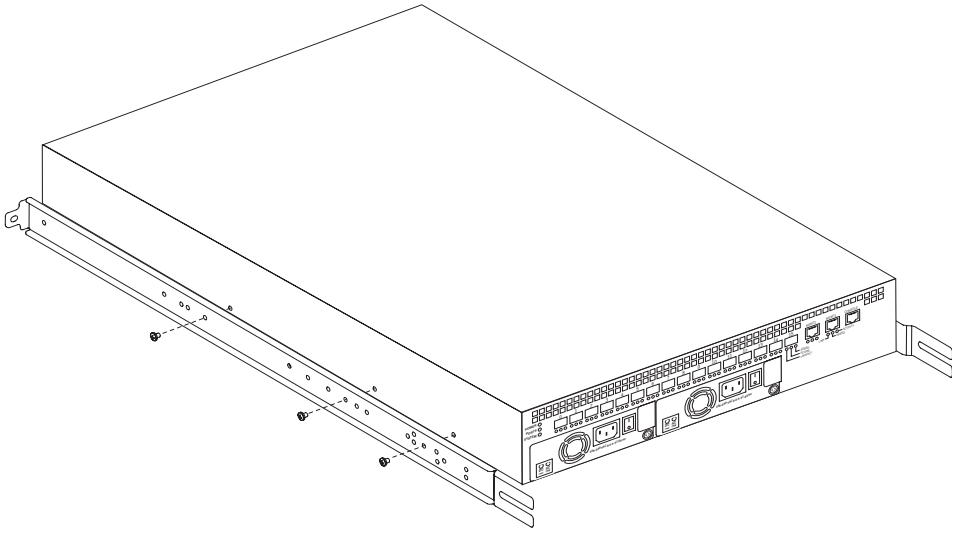


Figure 6: Attaching the Inner Rails to an MP Router

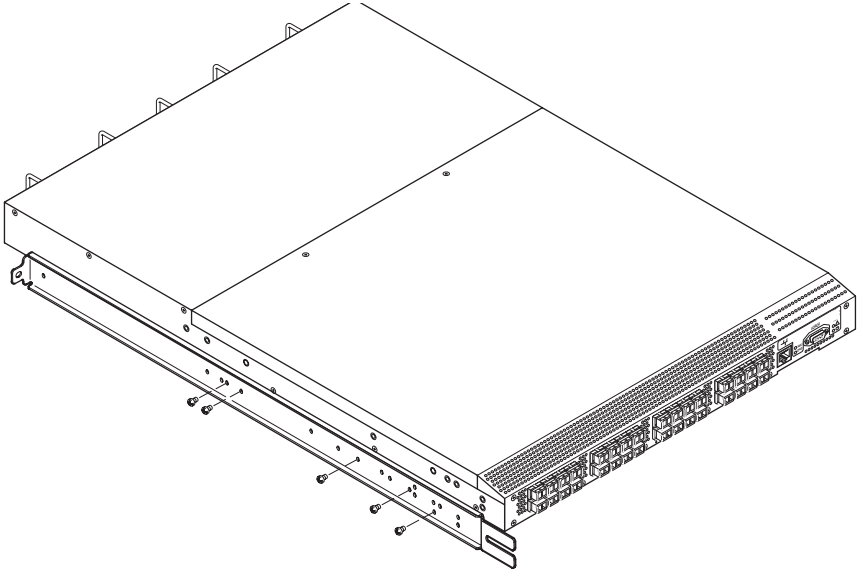


Figure 7: Attaching the Inner Rails to a 4/64 SAN Switch

Note: For factory integration only, tighten the #8-32 x 3/16-inch Phillips pan-head screw with thread lock and torque between 6 to 8 inch-pounds.

8. If installing one of the following switches, you must install the plenum that ships in the accessory kit with the rack mount hardware:
   - SAN Switch 2/8V
   - SAN Switch 2/16
   - SAN Switch 2/16V
   - 4/8 SAN Switch
   - 4/16 SAN Switch
   - 4/32B SAN Switch

   See Installing the Plenum (if required), page 17 for complete installation instructions.

   If not installing one of the devices listed in step 8, go to Securing the Device to the Outer Rails, page 18 to complete the rack mount procedure.

Installing the Plenum (if required)

See Before You Begin - Important Information about the Plenum, page 4 to determine if you need to install the plenum before inserting the device in the rack.

To install the plenum:

1. Place the device (with inner rails attached) on a flat surface, see Figure 8.
2. Obtain the plenum and four 8-32 x .312 Phillips Pan-head SEMs screws from the accessory kit. These are the same screws used to attach the inner rails in step 5 of the previous section.
3. For each inner rail (`Left` and `Right`) use one screw hole marked **8** and one screw hole marked **16** to attach the plenum.

Caution: Verify that the open end of the plenum faces the rear of the device. For example, when installed properly you should see the plenum's air vent holes on one side, and the front panel of the device on the other.

The components shown in Figure 8 include the plenum (1), a switch (2), and the screws that attach the rails to the plenum (3).

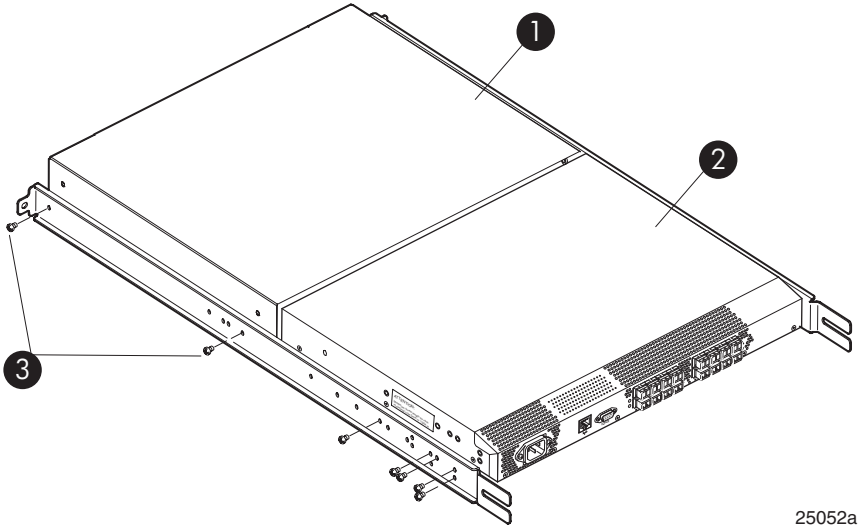


Figure 8: Attaching the Plenum to a 4/8 or 4/16 SAN Switch

Securing the Device to the Outer Rails

To secure the device to the outer rails:

1. Insert the switch with the attached inner rails into the outer rails.

Note: This step applies to installing a switch in HP 9000 Series, HP 10000 Series or HP System/e racks.

2. Insert the device into the rack and install (2) #10-32 x 1/2-inch Phillips pan-head screws with captive star lock washers with one on each side. See Figure 9 and Figure 10.

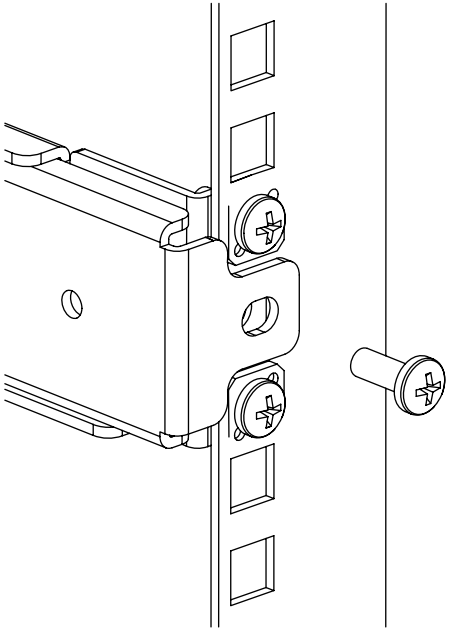


Figure 9: Securing the Device (in HP 9000 Series or HP 10000 Series Racks)

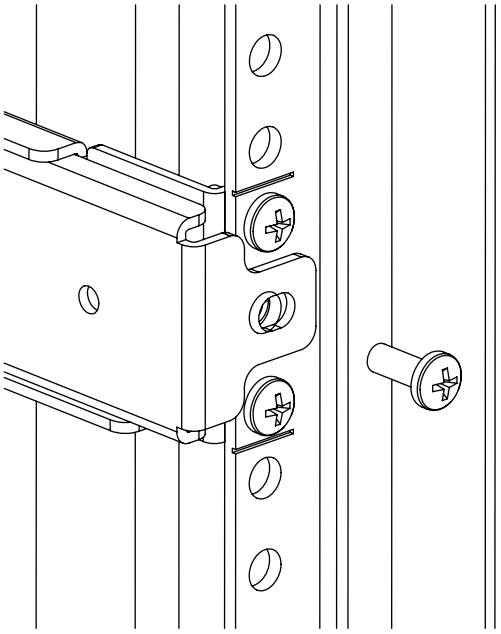


Figure 10: Securing the Device (in an HP System/e rack)

3. Tighten the hex nuts installed in step 4 on page 10. See Figure 3.

Note: To uninstall a device, remove the middle #10-32 x 1/2-inch Phillips pan head screw with captive star lock washer from either side of the rack uprights.

This completes the rack mount procedure.